1895 (G); Huntsville, Kingfisher County, *Laura A. Blankenship*, May 30, 1896 (G); Witchita Mts., Marcey Expedition, 1852 (G); Kenton, Cimarron County, *G. W. Stevens*, no. 492, May 15, 1913 (G); Elk City, Beckham County, *E. J. Palmer*, no. 12567, June 16, 1917 (A); Seiling, *D. M. Andrews*, no. 67, Aug. 17, 1915 (A); Sapulpa, *C. B. Williams*, July 2, 1924 (P).

ARKANSAS: *Dr. Pitcher* (without locality or date) (P).

WYOMING: Sundance, Crook County, *Aven Nelson*, no. 5919, July 24, 1910 (G).

NEW MEXICO: Las Vegas, San Miguel County, *Bro. Anect*, no. 136, June 1920 (G); Vermejo Park, *Mrs. O. S. St. John*, no. 184, July–Aug., 1894 (G); La Cueva, Mora County, *Bros. G. Arsène & A. Benedict*, no. 17104, July 2, 1926 (A); Las Vegas Hot Springs, *Alfred Rehder*, no. 643, Sept. 21, 1916 (A).

TEXAS: Gamble's Ranch, Armstrong County, *E. J. Palmer*, no. 13980, June 6, 1918 (A).

Frequently cultivated in American and European Parks and gardens.

2a. **Amorpha canescens** var. **glabrata** Gray, Pl. Wright. I. 49 (1852).

Amorpha canescens β. leptostachya Engelmann apud Gray, Mem. Am. Acad. Sci. II. 4, 31 (1849), nomen nudum.

Differs from the typical form in the branches and foliage being only sparsely pubescent or glabrate and in the greener color of the leaves. The amount of pubescence is extremely variable and a complete series of gradations may be found between this variety and the typical form. In depauperate specimens the leaflets are often very small and the inflorescence is reduced to a single short spike. These variants perhaps deserve only to be regarded as forms, but to avoid making a new combination I am retaining Dr. Gray's varietal name.

Illinois and Missouri to Texas and New Mexico.—Type locality: eastern Texas.

MISSOURI: Medill, Clark County, *B. F. Bush*, no. 9162, Aug. 23, 1920 (A); Forest Mill, Jasper County, *E. J. Palmer*, no. 21673, June 2, 1922 (A); Neck City, Jasper County, *E. J. Palmer*, no. 20523, Sept. 19, 1921 (A); Melugin, Jasper County, *E. J. Palmer*, no. 25305, June 4, 1924 (A); Galena, Stone County, *E. J. Palmer*, no. 26150, Sept. 16, 1924 (A); Pontiac, Ozark County, *E. J. Palmer*, no. 33126, Oct. 12, 1927 (A); Columbia, cliffs of Grindstone, *Francis P. Daniels*, July, 1903 (University of Missouri Herbarium); Cole Camp, Benton County, *E. J. Palmer*, no. 26362, Oct. 1, 1924 (in part) (A).

OKLAHOMA: Kenton, Cimarron County, *G. W. Stevens*, no. 492, May 15, 1913 (in part) (G).[1]

TEXAS (?): *F. Lindheimer*, no. 37, 1843 (G).[2]

Sometimes cultivated in America and Europe.

3. **Amorpha herbacea** Walter, Fl. Car. 179 (1788).—Fig. 3.

Amorpha pubescens Willdenow, Berlin. Baumz. 17 (1796).

Amorpha pumila Michaux, Fl. Bor. Am. II. 64 (1803).

Amorpha herbacea var. a. *typica* C. Schneider, Ill. Handb. Laubholzk. II. 67 (1907).

Amorpha herbacea var. b. *Boyntoni* C. Schneider, l. c.

A low suffruticose shrub, usually less than one m. high, finely canescent throughout. Leaves very short-petioled; leaflets 11–41, elliptic, oblong, or slightly oval, 1–2 cm. long, 0.6–1 cm. wide, rounded at both ends or abruptly pointed at the apiculate apex, with the veins, except the mid-rib, inconspicuous. Inflorescence of numerous slender, rather loosely flowered racemes, 1–3 dm. long; calyx villous, the two upper lobes broadly triangular and shorter than the lanceolate, acuminate lower ones, which are fully half as long as the tube; standard white or pale violet. Pod nearly straight dorsally, 4–5 mm. long, pubescent, with conspicuous dark glandular dots.

North Carolina to Florida and Georgia.—Type locality: Carolina.

NORTH CAROLINA: Kingston, Lenoir County, *L. F. & Fanny R. Randolph*, no. 560, July 9, 1922 (G); *Curtiss* (without locality or date) (G); Bladen County, ex Biltmore Herbarium, no. 35b, June 20, 1897 (A, G, P); Wilmington, *T. G. Harbison*, no. 3, June 21, 1915 (A); Wilmington, *C. S. Williamson*, July, 1895 (P); Wilmington, *M. A. Curtis* (without date) (P); eastern North Carolina, *Gerald McCarthy*, no. 51, July, 1885 (P); Carolina, *Pinkney* (without locality or date) (P);

SOUTH CAROLINA: Santee Canal, *H. W. Ravenel*, (G); Calhoun Falls, *T. G. Harbison*, no. 9, May 20, 1918 (A); *M. A. Curtis* (without locality or date) (G).

GEORGIA: Rabun County, *T. G. Harbison*, no. 187, Oct. 1, 1910 (A); Augusta, *C. S. Sargent*, April 29, 1914 (A); Pulaski, Bulloch County, *R. M. Harper*, no. 9421, June 24, 1921 (A); Georgia, *Nuttall* (without locality or date) (P); Baldwin?, ex Herbarium

[1] The sheet of this number in the Gray Herbarium seems to belong to this variety, while that of the same number in the Arnold Arboretum Herbarium is of the typical form.

[2] This interesting specimen has the small, green, glabrate leaves of this variety, and the slender loosely flowered racemes are 13–26 cm. long. The sheet is labelled: "Flora Texana exsiccata. 37. A. paniculata Torr. & Gray. Fasc. I, leg. F. Lindheimer, 1843." The sheet also bears the notation: "N. B.—There has evidently been a confusion of labels and plants on this sheet. This is certainly not Lindheimer's 37." The specimens seem to agree best with Engelmann's var. *leptostachya*.

Schweinitz (without date) (P); Milledgeville, *Samuel Boykin* (without date) (P).

FLORIDA: Tampa Bay, *Otto Visterland*, no. 3, May, 1887 (A); Brookville, Hernando County, *E. J. Palmer*, no. 27352, May 18, 1925 (A); Florida, *Leavenworth* (without locality or date) (G); New Market, ex Herbarium A. C. Hexamer and F. W. Maier, June, 1855 (G); Richland, Pasco County, *A. H. Curtiss*, no. 6664, June 15, 1900 (G, P); St. Johns River, between Palatka and St. Augustine, *Rugel*, July, 1848 (G); near Manatee River, *Rugel*, no. 165, June, 1845 (G); Sumpter County, *A. H. Curtiss*, no. 573, June (P); Eustis, Lake County, *Geo. V. Nash*, no. 1976, June 16–30, 1895 (P); Florida, *A. W. Chapman* (without locality or date) (P); John's Pass, *S. M. Tracy*, no. 7794, May 26, 1901 (G).

Sometimes cultivated in American and European gardens.

4. **Amorpha cyanostachya** M. A. Curtis in Boston Jour. Nat. Hist. I. 140 (1835).—Fig. 3.

?*Amorpha pumila* Schlechtendahl, Ind. Sem. Hort. Hal. 8 (1848).
Amorpha caroliniana Rydberg in N. Am. Fl. XXIV. 29 (1919).—Not *A. caroliniana* Croom.

A shrub 1–2 m. high; branches glabrous or sparingly pilose. Leaves 1–1.5 dm. long; petioles short, 8–12 mm. long; leaflets oblong or elliptic, 15–25 mm. long, 8–12 mm. wide, rounded at both ends or acute at the mucronate apex, glabrous or nearly so, dark green and glossy above, paler and conspicuously punctate-dotted beneath, of firm texture and with revolute margins at maturity. Flowering racemes single or few in cluster, slender, 0.5–1 dm. long; calyx glandular, glabrous, except the ciliate margins of the teeth, the upper two of which are obtuse or broadly triangular and the lower three acute and subulate-pointed; standard bright blue. Pod about 5 mm. long, conspicuously glandular-dotted, straight or nearly so on back.

North Carolina to Florida and Alabama, near the coast.—Type locality: Wilmington, N. C.

NORTH CAROLINA: Wilmington, *T. G. Harbison*, no. 16, June 11, 1917 (A); Wilmington, *Edward A. Bartram*, Oct. 6, 1908 (P); Wilmington, ex Biltmore Herb. no. 1381L, July 1, 1904 (P); Swain County, *H. C. Beardslee & C. A. Kofoid*, July 17, 1891 (P); Hamlet, *C. S. Williamson*, May 20, 1895 (P).

FLORIDA: West Florida, *Chapman*, ex Biltmore Herb., no. 5767, June, 1890 (G); East Florida, *Chapman* (without locality or date) (G); Florida, ex Torrey Herb. (without locality or date) (G).

ALABAMA: Banks of Alabama River, *S. B. Buckley*, Aug. 1840 (G).

By comparing the original descriptions of *A. caroliniana*[1] and of *A. cyanostachya*[2] with that given by Rydberg in N. Am. Fl. it will be seen that Croom's plant cannot have been the glabrous species there referred to it. His insistence on the short solitary spike and characterization of a plant with pubescent branches and leaves covered on both surfaces with minute shining hairs is somewhat suggestive of *A. Schwerini*, which is so distinct that it would have been likely to have attracted the attention of earlier botanists. I hesitate, however, to refer that species to it as a synonym, as the pubescence on Schneider's plant is soft and copious, and I do not know of any specimens from the vicinity of Newbern. In fact I have seen no specimens that in all respects agree with the original description. Curtis describes the leaves of *A. cyanostachya* as glabrous, and in their number and other characters as well as those of the calyx and flowers it agrees with the specimens here referred to it. The author's note comparing it with *A. fruticosa*, from which it is distinguished by its shorter, more pubescent spikes, throws some doubt upon it. However, the plant which he called *A. fruticosa* about Wilmington probably was not that species and may have been *A. glabra*.

Since the description given of *A. caroliniana* appears to be too indefinite to be applied to any plant known in the region, it seems advisable to abandon it, and I am taking up Curtis' name for this plant, which is a common species in the neighborhood of Wilmington, to avoid adding another name, since it agrees with it more fully, although not clear in all particulars.

5. **Amorpha floridana** Rydberg in N. Am. Fl. XXIV. 31 (1919).—Fig. 5.

A shrub 1–1.5 m. high; branches sparingly villous. Leaves 1–1.5 dm. long, petioles short (0.5–1 cm. long), equalling or shorter than the lowest leaflets; leaflets 21–41, narrow-oblong, rounded at both ends, glabrous or nearly so above, paler and conspicuously glandu-

[1] Amorpha * caroliniana.
Plant shrubby, four to five feet high; branches pubescent, striate; leaves pinnate; leaflets oblong, obtuse, mucronate, petiolate, covered on both surfaces with minute, shining hairs, and thickly studded with diaphanous glands; spike *solitary, short;* flowers very small, dark purple, approaching to indigo; calyx sprinkled with minute hairs. Found by Dr. Loomis in 1832, near Newbern, flowering in July.

[2] *Amorpha cyanostachya.* Leaflets oblong, emarginate, obtuse at each end, smooth; Rachis pubescent; Flowers subsessile; Calyx with the margins villous, two of the teeth short, obtuse, and three acuminate, subaristate, nearly equal; Vexillum obcordate, more than twice the length of the calyx.

Obs. Leaflets 10–15 pairs, 6–9 lines long, 3–4 wide, glandular, occupying the petiole nearly to the stem. Flowers blue, darker at the summit of the vexillum, and becoming lighter towards the base. This species is distinguished from *A. fruticosa* by its different colored flowers; shorter pedicels; spikes shorter, more pubescent, and less attenuated; a calyx at base; shorter stamens; and smaller and more numerous leaflets.

lar-dotted beneath, more or less pubescent when young, becoming glabrous at maturity and then firm in texture and with slightly revolute margins. Racemes numerous, clustered, 5–15 cm. long; rachis villous; calyx 3–4 mm. long, slightly puberulent or glabrous, glandular-dotted; calyx-lobes short with ciliate margins, the upper two broadly triangular, obtuse, the lower three lance-triangular; standard purple. Pod 4–5 mm. long, conspicuously glandular-dotted, slightly curved dorsally.

Florida.—Type collected by Chapman (without definite locality).

FLORIDA: *Chapman* (without locality or date) (Type) (N); *Chapman*, west Florida, June, 1890, ex Biltmore Herb., no. 5767 (A, N); *Chapman* (without locality or date), ex Torrey Herb. (N); Apalachicola, *B. F. Saurman*, 1867 (P).

6. **Amorpha brachycarpa**, sp. nov.—Plate 36 and Fig. 6.

Frutex erectus gracilis 6–9 dm. altus, ramis paucis, glabris vel parce pubescentibus. Folia numerosa subsessilia, rachibus gracilibus canaliculatis; foliola densa vel imbricata, 21–45, oblonga, 8–15 mm. longa et 4–8 mm. lata, apice rotunda vel emarginata, mucronata, basi rotundata vel subcordata, matura papyracea, glabra vel parce ciliata, marginibus revolutis, costis nervisque prominentibus, reticulata. Inflorescentia paniculata, 1–2.5 dm. longa, ramis multis gracilibus dense floriferis; pedicelli glabri, 1–1.5 mm. longi; calyx turbinatus, angulatus, glaber vel fere glaber; sepala lanceolata, ciliata, superiores tubo triente breviores, inferiores tubum aequantes vel longiores; vexillum obovatum, apice truncatum vel leviter emarginatum, purpureo-caeruleum; stamina et stylus glaber exserta. Legumen obliquo-obovatum, 4–5 mm. longum, 3–3.5 mm. latum, dorso recto, calycis dentes vix excedens, atrobrunneum, manifeste glanduloso-punctatum, monospermum, rostro incurvo.

A slender shrub 6–9 dm. tall, with few, erect, glabrous or sparsely pubescent, grooved branches. Leaves numerous, 7–12 cm. long, sessile or nearly so, with 21–45 oblong leaflets, rachis slender, glabrous or nearly so, channeled above; stipules inconspicuous, linear-subulate, 1–1.5 mm. long; leaflets approximate, crowded or imbricately overlapping, oblong, symmetrical or slightly oblique, 8–15 mm. long, 4–8 mm. wide, rounded or subcordate at base, rounded or slightly emarginate and mucronate at apex, the terminal one reduced and often nearly orbicular and deeply emarginate, thin but firm, glabrous or with a few ciliate hairs on the margins and on the veins beneath, margins slightly revolute, the mid-vein prominent and the secondary veins rather conspicuous on the slightly reticulate lower surface; petioles glabrous, about 1 mm. long. In-

florescence paniculately branched, 1–2.5 dm. long, of many, erect, slender, closely-flowered branches; flowers on very short (1–1.5 mm.) pedicels; calyx turbinate, 4–5 mm. long, the tube angled, glabrous or nearly so, except the lanceolate, acuminate, calyx-lobes, the upper two of which are about two-thirds the length of the tube and the lower ones fully as long or longer than tube, ciliate on the margins; standard obovate, truncate or slightly emarginate at apex, bright violet-blue; stamens and glabrous style exserted. Fruit obliquely obovate, 4–5 mm. long, 3–3.5 mm. wide, much flattened, nearly straight on the back, terminated by curved beak and persistent style, dark brown, with conspicuous resinous dots, margins slightly thickened, one-seeded, the pod scarcely exceeding the calyx-lobes.

Barrens and glades of the Ozark region, Missouri.—Type locality: Galena, Stone County.

MISSOURI: Galena, Stone County, *E. J. Palmer*, no. 19197 (type), Sept. 27, 1920 (A); nos. 20649, 22853 (paratypes), Oct. 1, 1921, May 24, 1923 (A).—Cultivated specimens: Arnold Arboretum, under numbers 15781, 20002, collected Sept. 19, 1923, Aug. 4, Sept. 23, 1924, Sept. 23, 1929 (paratypes) (A).

This little species of *Amorpha* resembles *A. nana* in size, habit and foliage. However, it is well distinguished from that species by the large, many-branched panicle, and by the relatively short tube and long teeth of the calyx, the latter about equalling the broad pod with its strongly reflexed beak. From *A. canescens*, to which it is perhaps most closely related, it is distinguished both by its glabrous character and by the relatively broader, much flattened, straight-backed pod, with strongly reflexed beak. The leaflets are also relatively shorter and broader than in typical forms of *A. canescens*.

The type locality where *Amorpha brachycarpa* was discovered is typically Ozarkean in topography and flora. It was growing in limestone glades, in openings of deciduous woods, where it was locally abundant. It should be looked for in similar situations at other localities in the Ozarks.

Plants grown at the Arnold Arboretum, both from seeds and roots collected at the type locality, have produced flowers and fruit, retaining all of the distinguishing characters of the parent plants, and since specimens collected from these, especially at flowering time, were in even better condition than the native material, both have been drawn upon for the description and figures.

7. **Amorpha nana** Nuttall in Fraser, Cat. (1813); reprinted in Pittonia, II. 116 (1890).—Fig. 7.

Amorpha microphylla Pursh, Fl. Am. Sept. 466 (1814).
Amorpha punctata Rafinesque, New Fl. III. 14 (1838).